

Listing of the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application.

1. (Original) A sulfate process for producing titania from a titaniferous material which includes the steps of:

- (a) leaching the titaniferous material with a leach solution containing sulfuric acid and forming a leach liquor that includes an acidic solution of titanyl sulfate (TiOSO_4) and iron sulfate (FeSO_4);
- (b) separating the leach liquor and a residual solid phase from the leach step (a);
- (c) precipitating iron sulfate from the leach liquor from step (b) and separating precipitated iron sulfate from the leach liquor;
- (d) extracting titanyl sulfate from the leach liquor from step (c) with a suitable solvent and thereafter stripping titanyl sulfate from the solvent and forming a solution that contains titanyl sulfate;
- (e) using at least part of a raffinate from solvent extraction step (d) as at least part of the leach solution in the leach step (a);
- (f) hydrolysing the solution that contains titanyl sulfate and forming hydrated titanium oxides from the titanyl sulfate;
- (g) separating a solid phase containing hydrated titanium oxides and a liquid phase that are produced in the hydrolysis step (f); and
- (h) calcining the solid phase from step (g) and forming titania.

2. (Previously Presented) The process defined in claim 1 further comprising a further leach step of leaching the residual solid phase from step (b) with a leach solution containing sulfuric acid and forming a leach liquor that includes an acidic solution of titanyl sulfate and iron sulfate and a residual solid phase.

3. (Previously Presented) The process defined in claim 2 further comprising

carrying out the leach step (a) and the further leach step in the same vessel.

4. (Original) The process defined in claim 3 wherein the further leach step includes returning the residual solid phase from step (b) to the vessel.

5. (Previously Presented) The process defined in claim 4 further comprising carrying out the leach step (a) and the further leach step in separate vessels and supplying the residual solid phase from the leach step (a) to the separate vessel or vessels.

6. (Original) The process defined in claim 5 wherein the further leach step includes separating the leach liquor and a further residual solid phase formed in the further leach step.

7. (Previously Presented) The process defined in claim 6 further comprising supplying the separated leach liquor to the leach step (a) or mixing the separated leach liquor with the leach liquor from step (b).

8. (Previously Presented) The process defined in claim 2 wherein step (e) includes using at least part of the raffinate from solvent extraction step (d) as at least part of the leach solution in the further leach step.

9. (Currently Amended) The process defined in claim 1 wherein the leach step (a) and/or the further leach step includes selecting and/or controlling the one or more leach conditions in the leach step or steps to avoid undesirable amounts of premature hydrolysis of hydrated titanium oxides and undesirable amounts of premature precipitation of titanyl sulfate.

10. (Original) The process defined in claim 9 wherein the leach conditions include any one or more than one of acid concentration, leach temperature and leach time.

11. (Previously Presented) The process defined in claim 9 further comprising selecting and/or controlling the acid concentration to be at least 350 g/l sulfuric acid throughout the leach step (a) and/or the further leach step when operating at a leach temperature in the range of 95°C to the boiling point in order to avoid premature hydrolysis.
12. (Previously Presented) The process defined in claim 9 further comprising selecting and/or controlling the acid concentration to be less than 450 g/l at the end of the leach step (a) and/or the further leach step when operating at a leach temperature in the range of 95°C to the boiling point in order to avoid an undesirable amount of premature precipitation of titanyl sulfate.
13. (Previously Presented) The process defined in claim 9 further comprising selecting and/or controlling the leach conditions so that the titanium ion concentration in the leach liquor is less than 50 g/l in the leach liquor at the end of the leach step (a) and/or the further leach step.
14. (Currently Amended) The process defined in claim 1 wherein the raffinate from the solvent extraction step (e) (d) has an acid concentration of at least 250 g/l sulfuric acid.
15. (Currently Amended) The process defined in claim 1 further comprising carrying out the leach step (a) and/or the further leach step in the presence of an additive a leaching accelerant that accelerates the rate of leaching the titaniferous material.
16. (Currently Amended) The process defined in claim 13 wherein the leaching accelerator is selected from the group that includes consisting of iron, a titanium (III) salt, a thiosulfate salt, sulfur dioxide, a or any other reduced sulfur containing species, and mixtures thereof.

17. (Previously Presented) The process defined in claim 1 further comprising carrying out the leach step (a) and/or the further leach step in the presence of a reductant that reduces ferric ions to ferrous ions in the acidic solution or solutions of titanyl sulfate and iron sulfate produced in the leach step (a) and/or the further leach step.
18. (Currently Amended) The process defined in claim 17 wherein the reductant is selected from the group ~~that includes~~ consisting of iron, a titanium (III) salt, a thiosulfate salt, sulfur dioxide, ~~a~~ or any other reduced sulfur containing species, and mixtures thereof.
19. (Previously Presented) The process defined in claim 1 wherein the solvent extraction step (d) includes contacting the leach liquor with the selected solvent and a modifier.
20. (Currently Amended) The process defined in claim 1 further comprising controlling the hydrolysis step ~~(e)~~ (f) to produce a selected particle size distribution of the hydrated titanium oxides product.